

PATENT ABSTRACTS OF JAPAN

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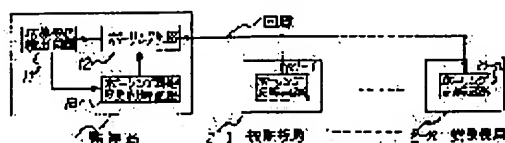
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(54) REMOTE MONITOR SYSTEM

(57)Abstract:

PURPOSE: To detect restoration of a monitored station in fault quickly.

CONSTITUTION: The remote monitor system of this embodiment consists of monitored stations 2-1-2-n and a monitor station 1 monitoring the monitored stations 2-1-2-n via a line, and the monitor station 1 is provided with a polling circuit 12 inquiring about the state of the monitored stations 2-1-2-n for a 1st polling period, a state change detection circuit 11 detecting a state change from a reply message of the monitored stations 2-1-2-n subject to polling, and a polling period revision control circuit 13 controlling the polling circuit 12 to quicken the polling period of the monitored stations 2-1-2-n in which a state change takes place based on the state change data detected by the state change detection circuit 11 from the 1st polling period to a 2nd predetermined polling period. Furthermore, the monitored stations 2-1-2-n have respectively polling reply circuits 21-1-21-n.



## LEGAL STATUS

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CLAIMS

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[Claim(s)]

[Claim 1] In the remote-supervisory system by which a monitor station supervises two or more monitor stations-ed through a circuit A polling means by which said monitor station asks the condition of two or more of said monitor stations-ed by the 1st polling synchronization, A detection means to detect a change of state from the response message from said polled supervisory equipment-ed, The polling period modification control means which controls said polling means in order to bring forward the polling synchronization of the monitor station-ed which the change of state generated based on the change-of-state data detected with this detection means to the 2nd polling synchronization to which it was beforehand set from said 1st polling synchronization The remote-supervisory system characterized by having.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] Especially this invention relates to the remote-supervisory system which used polling about a remote-supervisory system.

[0002]

[Description of the Prior Art] Monitor station 1a carries out sequential polling of the monitor station 2-1-ed - the 2-n, and this conventional kind of remote-supervisory system serves as a system configuration which supervises the condition of the monitor station 2-1-ed - 2-n, as shown in drawing 4 .

[0003]

[Problem(s) to be Solved by the Invention] In this conventional remote-supervisory system, since a monitor station only carries out sequential polling of the monitor station-ed and the synchronization (polling synchronization) when there are many monitor stations-ed, after being polled once until it is polled next is long, there is a trouble that detecting [ of a monitor station-ed with a change of state ] a change of state again takes time amount.

[0004]

[Means for Solving the Problem] In the remote-supervisory system by which, as for the remote-supervisory system of this invention, a monitor station supervises two or more monitor stations-ed through a circuit A polling means by which said monitor station asks the condition of two or more of said monitor stations-ed by the 1st polling synchronization, A detection means to detect

a change of state from the response message from said polled supervisory equipment-ed, It has the polling period modification control means which controls said polling means in order to bring forward the polling synchronization of the monitor station-ed which the change of state generated based on the change-of-state data detected with this detection means to the 2nd polling synchronization to which it was beforehand set from said 1st polling synchronization.

[0005]

[Example] Next, this invention is explained with reference to a drawing.

[0006] Drawing showing an operating sequence in case the number of the monitor stations-ed which the change of state generated in the block diagram in which drawing 1 shows one example of this invention, and this example which shows drawing 2 to drawing 1 is one, and drawing 3 are drawings showing an operating sequence in case the number of the monitor stations-ed which the change of state in this example shown in drawing 1 generated is two.

[0007] In drawing 1 the remote-supervisory system of this example The monitor station 2-1-ed - 2-n, The polling circuit 12 where it consists of the monitor station 1 which supervises the monitor station 2-1-ed - 2-n through a circuit, and a monitor station 1 asks the condition of the monitor station 2-1-ed - 2-n the 1st polling period, The change-of-state detector 11 which detects a change of state from the response message from the polled monitor station-ed, The polling period modification control circuit 13 which controls the polling circuit 12 in order to bring forward the polling period of the monitor station-ed which the change of state generated based on the change-of-state data detected in the change-of-state detector 11 to the 2nd polling period to which it was beforehand set from the 1st polling period It has and constitutes. In addition, the monitor station 2-1-ed - 2-n have the polling response circuit 2-1 - 2-n, respectively. Next, actuation of this example is explained.

[0008] First, drawing 1 and drawing 2 are used together and explained about an operating sequence when one change of state occurs among the monitor station 2-1-ed - 2-n.

[0009] First, a monitor station 1 sends out the polling message (henceforth, P1) which asks the condition of the monitor station 2-1-ed. The monitor station 2-1-ed which received P1 sends out a response message (henceforth, R1 (NO-COS)). The monitor station 1 which received R1 (NO-COS) sends out next the polling message (henceforth, P2) which asks the condition of the monitor station 2-2-ed. Since the change of state had occurred, the monitor station 2-2-ed which received P2 sends out a response message (henceforth, R2 (COS)).

[0010] The monitor station 1 which received R2 (COS) sends out the polling message (henceforth, P3) which asks the condition of the monitor station 2-3-ed next. Since the change of state has not occurred, the monitor station 2-3-ed which received P3 sends out a response message (henceforth, R3 (NO-COS)). Since the change-of-state circuit 11 has detected the change of state of the monitor station 2-2-ed previously, the monitor station 1 which received R3 (NO-COS) sends out P2 in order to ask whether the polling period modification control circuit 13 brings forward the polling period to the monitor station 2-2-ed, and the failure of the monitor station 2-2-ed is restored.

[0011] Since the monitor station 2-ed which received P2 was not restored yet, it sends out R2 (NO-COS). The monitor station 1 which received R2 (NO-COS) sends out the polling message (henceforth, P4) which asks the condition of the monitor station 2-4-ed next. Since the change of state has not occurred, the monitor station 2-4-ed which received P4 sends a response message (henceforth, R4 (NO-COS)).

[0012] The monitor station 1 which received R4 (NO-COS) sends out P2 in order to ask whether bring forward the polling period to the monitor station 2-2-ed again, and the failure of the

monitor station 2-2-ed has carried out back old things. Since the monitor station 2-2-ed which received P2 was not restored yet, it sends out R2 (NO-COS).

[0013] Henceforth, a monitor station 1 is \*\*\*\*\* by turns about polling of the monitor station 2-2-ed and other monitor stations-ed until the failure of the monitor station 2-2-ed is restored. That is, a polling period is brought forward only to the monitor station 2-2-ed.

[0014] Drawing 3 is \*\*\*\*\* by turns about polling of the monitor station 2-2-ed which the failure has generated until the failure which showed the operating sequence when the change of state of a monitor station-ed occurs in two games, and was generated even in this case is restored, and the monitor station-ed of 2-3 and others.

[0015] In addition, polling of the monitor station-ed which the failure has generated, and other monitor stations-ed may be changed about a \*\*\*\*\* period according to the special feature of the system for a monitor station by turns.

[0016]

[Effect of the Invention] A polling means by which, as for this invention, a monitor station asks the condition of two or more monitor stations-ed with having explained above the 1st polling period, A detection means to detect a change of state from the response message from the polled monitor station-ed, By having the polling period modification control means which controls a polling means in order to bring forward the polling period of the monitor station-ed which the change of state generated based on the change-of-state data detected with this detection means to the 2nd polling period to which it was beforehand set from the 1st polling period It has the effectiveness that the change-of-state detection time at the time of failure restoration can be especially brought forward.

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## TECHNICAL FIELD

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[Industrial Application] Especially this invention relates to the remote-supervisory system which used polling about a remote-supervisory system.

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## PRIOR ART

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[Description of the Prior Art] Monitor station 1a carries out sequential polling of the monitor station 2-1-ed - the 2-n, and this conventional kind of remote-supervisory system serves as a system configuration which supervises the condition of the monitor station 2-1-ed - 2-n, as shown in drawing 4 .

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## EFFECT OF THE INVENTION

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[Effect of the Invention] A polling means by which a monitor station asks the condition of two or more monitor stations-ed with having explained above the 1st polling period by this invention, A detection means to detect a change of state from the response message from the polled monitor station-ed, It has the polling period modification control means which controls a polling means in order to bring forward the polling period of the monitor station-ed which the change of state

generated based on the change-of-state data detected with this detection means to the 2nd polling period to which it was beforehand set from the 1st polling period. Therefore, it has the effectiveness that the change-of-state detection time at the time of failure restoration can be especially brought forward.

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## TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention] In this conventional remote-supervisory system, since a monitor station only carries out sequential polling of the monitor station-ed and the synchronization (polling synchronization) when there are many monitor stations-ed, after being polled once until it is polled next is long, there is a trouble that detecting [ of a monitor station-ed with a change of state ] a change of state again takes time amount.

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## MEANS

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[Means for Solving the Problem] It is characterized by equipping the remote-supervisory system of this invention with the following. It is a polling means by which said monitor station asks the condition of two or more of said monitor stations-ed by the 1st polling synchronization in the remote-supervisory system by which a monitor station supervises two or more monitor stations-ed through a circuit. A detection means to detect a change of state from the response message from said polled supervisory equipment-ed The polling period modification control means which controls said polling means in order to bring forward the polling synchronization of the monitor station-ed which the change of state generated based on the change-of-state data detected with this detection means to the 2nd polling synchronization to which it was beforehand set from said 1st polling synchronization.

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## EXAMPLE

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[Example] Next, this invention is explained with reference to a drawing.

[0006] Drawing showing an operating sequence in case the number of the monitor stations-ed which the change of state generated in the block diagram in which drawing 1 shows one example of this invention, and this example which shows drawing 2 to drawing 1 is one, and drawing 3 are drawings showing an operating sequence in case the number of the monitor stations-ed which the change of state in this example shown in drawing 1 generated is two.

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to which it was beforehand set from the 1st polling period It has and constitutes. In addition, the monitor station 2-1-ed - 2-n have the polling response circuit 2-1 - 2-n, respectively. Next, actuation of this example is explained.

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[0013] Henceforth, a monitor station 1 is \*\*\*\*\* by turns about polling of the monitor station 2-2-ed and other monitor stations-ed until the failure of the monitor station 2-2-ed is restored. That is, a polling period is brought forward only to the monitor station 2-2-ed.

[0014] Drawing 3 is \*\*\*\*\* by turns about polling of the monitor station 2-2-ed which the failure has generated until the failure which showed the operating sequence when the change of state of a monitor station-ed occurs in two games, and was generated even in this case is restored, and the monitor station-ed of 2-3 and others.

[0015] In addition, polling of the monitor station-ed which the failure has generated, and other monitor stations-ed may be changed about a \*\*\*\*\* period according to the special feature of the system for a monitor station by turns.

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## DESCRIPTION OF DRAWINGS

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### [Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing one example of this invention.

[Drawing 2] It is drawing showing an operating sequence in case the number of the monitor stations-ed which the change of state generated in this example shown in drawing 1 is one.

[Drawing 3] It is drawing showing an operating sequence in case the number of the monitor stations-ed which the change of state in this example shown in drawing 1 generated is two.

[Drawing 4] It is drawing showing the operating sequence of the conventional remote-supervisory system.

### [Description of Notations]

1 Monitor Station

2-1 - 2-n Monitor station-ed

11 Change-of-State Detector

12 Polling Circuit

13 Polling Period Modification Control Circuit

21-1 - 21-n Polling response circuit

P1-Pn Polling message which asks the condition of a monitor station-ed

R1 (NO-COS)-Rn (NO-COS) Response message of a monitor station-ed in case there is no change of state

R1 (COS)-Rn (COS) Response message of a monitor station-ed in case a change of state occurs



REMOTE MONITOR SYSTEM

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Applicant(s): NEC CORP; others: 01

Requested Patent: JP5236555

Application Number: JP19910308629 19911125

Priority Number(s):

IPC Classification: H04Q9/00; H04L12/40

EC Classification:

Equivalents:

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Abstract  
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PURPOSE: To detect restoration of a monitored station in fault quickly.

CONSTITUTION: The remote monitor system of this embodiment consists of monitored stations 2-1-2-n and a monitor station 1 monitoring the monitored stations 2-1-2-n via a line, and the monitor station 1 is provided with a polling circuit 12 inquiring about the state of the monitored stations 2-1-2-n for a 1st polling period, a state change detection circuit 11 detecting a state change from a reply message of the monitored stations 2-1-2-n subject to polling, and a polling period revision control circuit 13 controlling the polling circuit 12 to quicken the polling period of the monitored stations 2-1-2-n in which a state change takes place based on the state change data detected by the state change detection circuit 11 from the 1st polling period to a 2nd predetermined polling period. Furthermore, the monitored stations 2-1-2-n have respectively polling reply circuits 21-1-21-n.

[0001]

[Industrial Field of Application] This invention relates to a distance monitoring system, and in particular, relates to a distance monitoring system which used a polling system.

[0007] In Fig. 1, the distance monitoring system of this embodiment comprises stations 2-1 to 2-n to be monitored, and a monitoring station 1 which monitors the stations 2-1 to 2-n to be monitored, through a line, and the monitoring station 1 is configured by having a polling circuit 12 for inquiring for statuses of the stations 2-1 to 2-n to be monitored, with a first polling cycle, a status change detection circuit 11 for detecting a status change from a response message from the polled station to be monitored, and a polling cycle change control circuit 13 for controlling the polling circuit 12 so as to hasten a polling cycle of the station to be monitored, where a status change occurred, from the first polling cycle to a predetermined second polling cycle on the basis of status change data which was detected by the status change detection circuit 11. Meanwhile, the stations 2-1 to 2-n to be monitored have polling response circuits 2-1 to 2-n, respectively. Next, an operation of the embodiment will be described.

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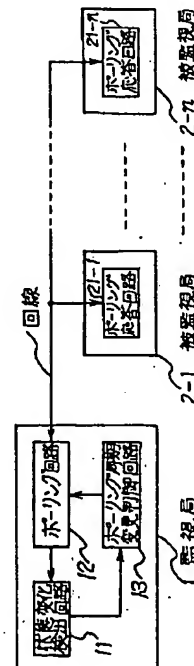
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(54)【発明の名称】 遠方監視システム

(57)【要約】

【目的】 障害になった被監視局の復旧を早く検出する。

【構成】 本実施例の遠方監視システムは被監視局2-1～2-nと、被監視局2-1～2-nを回線を介して監視する監視局1とから成り、監視局1は被監視局2-1～2-nの状態を第1のポーリング周期で問い合わせるポーリング回路12と、ポーリングされた被監視局からの応答メッセージから状態変化を検出する状態変化検出回路11と、状態変化検出回路11で検出された状態変化データに基づき状態変化の発生した被監視局のポーリング周期を第1のポーリング周期から予め定められ第2のポーリング周期に早めるべくポーリング回路12を制御するポーリング周期変更制御回路13とを備えて構成している。尚、被監視局2-1～2-nはそれぞれポーリング応答回路21-1～21-nを有している。



## 【特許請求の範囲】

【請求項1】 複数の被監視局を回線を介して監視局が監視する遠方監視システムにおいて、前記監視局は前記複数の被監視局の状態を第1のポーリング同期で問い合わせるポーリング手段と、ポーリングされた前記被監視装置からの応答メッセージから状態変化を検出する検出手段と、この検出手段で検出された状態変化データに基づき状態変化の発生した被監視局のポーリング同期を前記第1のポーリング同期から予め定められた第2のポーリング同期に早めるべく前記ポーリング手段を制御するポーリング周期変更制御手段とを備えることを特徴とする遠方監視システム。

## 【発明の詳細な説明】

## 【0001】

【産業上の利用分野】 本発明は遠方監視システムに関し、特にポーリング方式を使用した遠方監視システムに関する。

## 【0002】

【従来の技術】 従来のこの種の遠方監視システムは、図4に示すように、監視局1aが被監視局2-1~2-nを順次ポーリングして、被監視局2-1~2-nの状態を監視するシステム構成となっている。

## 【0003】

【発明が解決しようとする課題】 この従来の遠方監視システムでは、監視局が被監視局を順次ポーリングするだけであるので、被監視局数が多い場合一度ポーリングされてから、次にポーリングされるまでの同期（ポーリング同期）が長いので、状態変化のあった被監視局の再度状態変化を検出するのに時間がかかるという問題点がある。

## 【0004】

【課題を解決するための手段】 本発明の遠方監視システムは、複数の被監視局を回線を介して監視局が監視する遠方監視システムにおいて、前記監視局は前記複数の被監視局の状態を第1のポーリング同期で問い合わせるポーリング手段と、ポーリングされた前記被監視装置からの応答メッセージから状態変化を検出する検出手段と、この検出手段で検出された状態変化データに基づき状態変化の発生した被監視局のポーリング同期を前記第1のポーリング同期から予め定められた第2のポーリング同期に早めるべく前記ポーリング手段を制御するポーリング周期変更制御手段とを備えている。

## 【0005】

【実施例】 次に、本発明について図面を参照して説明する。

【0006】 図1は本発明の一実施例を示すブロック図、図2は図1に示す本実施例において状態変化が発生した被監視局が1局の場合の動作シーケンスを示す図、図3は図1に示す本実施例における状態変化が発生した被監視局が2局の場合の動作シーケンスを示す図であ

る。

【0007】 図1において、本実施例の遠方監視システムは被監視局2-1~2-nと、被監視局2-1~2-nを回線を介して監視する監視局1とから成り、監視局1は被監視局2-1~2-nの状態を第1のポーリング同期で問い合わせるポーリング回路12と、ポーリングされた被監視局からの応答メッセージから状態変化を検出する状態変化検出回路11と、状態変化検出回路11で検出された状態変化データに基づき状態変化の発生した被監視局のポーリング同期を第1のポーリング同期から予め定められた第2のポーリング同期に早めるべくポーリング回路12を制御するポーリング周期変更制御回路13とを備えて構成している。尚、被監視局2-1~2-nはそれぞれポーリング応答回路2-1~2-nを有している。 次に本実施例の動作について説明する。

【0008】 まず、被監視局2-1~2-nの内1局のみ状態変化が発生した場合の動作シーケンスについて図1、図2を併用して説明する。

【0009】 まず、監視局1は被監視局2-1の状態を問い合わせるポーリングメッセージ（以下P1）を送出する。P1を受信した被監視局2-1は応答メッセージ（以下R1（NO-COS））を送出する。R1（NO-COS）を受信した監視局1は、次に、被監視局2-2の状態を問い合わせるポーリングメッセージ（以下P2）を送出する。P2を受信した被監視局2-2は状態変化が発生していたため、応答メッセージ（以下R2（COS））を送出する。

【0010】 R2（COS）を受信した監視局1は次に被監視局2-3の状態を問い合わせるポーリングメッセージ（以下P3）を送出する。P3を受信した被監視局2-3は状態変化が発生していないため応答メッセージ（以下R3（NO-COS））を送出する。R3（NO-COS）を受信した監視局1は先に状態変化回路11が被監視局2-2の状態変化を検出しているため、ポーリング周期変更制御回路13が被監視局2-2へのポーリング周期を早め被監視局2-2の障害が復旧していないかどうか問い合わせるためP2を送出する。

【0011】 P2を受信した被監視局2はまだ復旧していなかったため、R2（NO-COS）を送出する。R2（NO-COS）を受信した監視局1は次に被監視局2-4の状態を問い合わせるポーリングメッセージ（以下P4）を送出する。P4を受信した被監視局2-4は状態変化が発生していないため、応答メッセージ（以下R4（NO-COS））を送付する。

【0012】 R4（NO-COS）を受信した監視局1は、再び被監視局2-2へのポーリング周期を早めて被監視局2-2の障害が復旧していないかどうか問い合わせるためP2を送出する。P2を受信した被監視局2-2はまだ復旧していなかったため、R2（NO-COS）を送出する。

【0013】以降、被監視局2-2の障害が復旧するまで、監視局1は被監視局2-2とその他の被監視局のポーリングを交互にくりかえす。即ち、被監視局2-2に対してのみポーリング周期を早める。

【0014】図3は被監視局の状態変化が2局に発生した場合の動作シーケンスを示し、この場合でも発生した障害が復旧するまで、障害が発生している被監視局2-2、2-3とその他の被監視局のポーリングを交互にくりかえす。

【0015】尚、障害が発生している被監視局とその他の被監視局のポーリングを交互にくりかえす周期については、監視局対象システムの特質に応じ変更してもよい。

【0016】

【発明の効果】以上説明したように本発明は、監視局が複数の被監視局の状態を第1のポーリング周期で問い合わせるポーリング手段と、ポーリングされた被監視局からの応答メッセージから状態変化を検出する検出手段と、この検出手段で検出された状態変化データに基づき状態変化の発生した被監視局のポーリング周期を第1のポーリング周期から予め定められた第2のポーリング周期に早めるべくポーリング手段を制御するポーリング周期変更制御手段とを備えることにより、特に障害復旧時の状態変化検出時間を早めることができるという効果を

有する。

【図面の簡単な説明】

【図1】本発明の一実施例を示すブロック図である。

【図2】図1に示す本実施例において状態変化が発生した被監視局が1局の場合の動作シーケンスを示す図である。

【図3】図1に示す本実施例における状態変化が発生した被監視局が2局の場合の動作シーケンスを示す図である。

【図4】従来の遠方監視システムの動作シーケンスを示す図である。

【符号の説明】

1 監視局

2-1～2-n 被監視局

11 状態変化検出回路

12 ポーリング回路

13 ポーリング周期変更制御回路

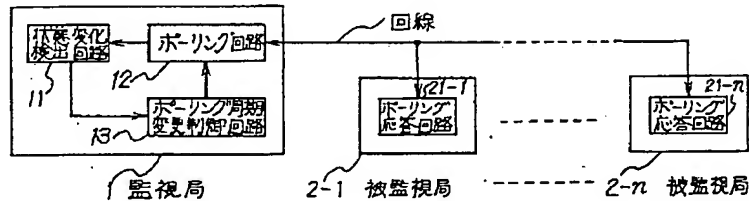
21-1～21-n ポーリング応答回路

20 P1～Pn 被監視局の状態を問い合わせるポーリングメッセージ

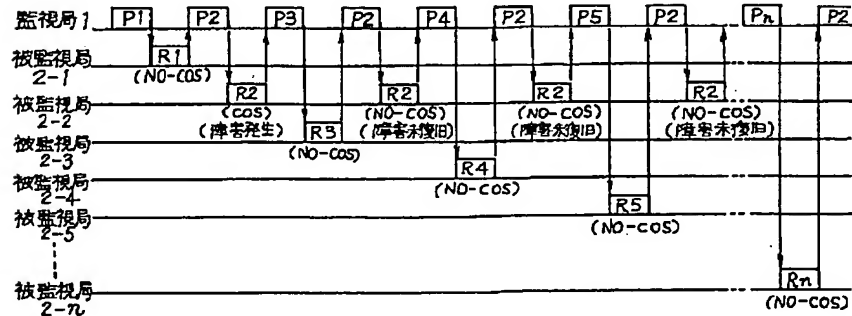
R1 (NO-COS)～Rn (NO-COS) 状態変化がない場合の被監視局の応答メッセージ

R1 (COS)～Rn (COS) 状態変化がある場合の被監視局の応答メッセージ

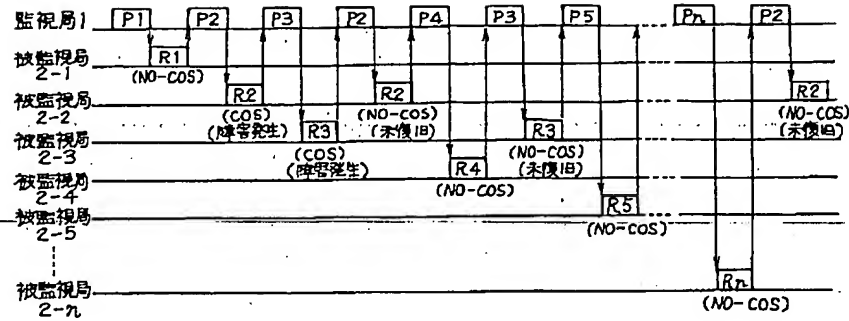
【図1】



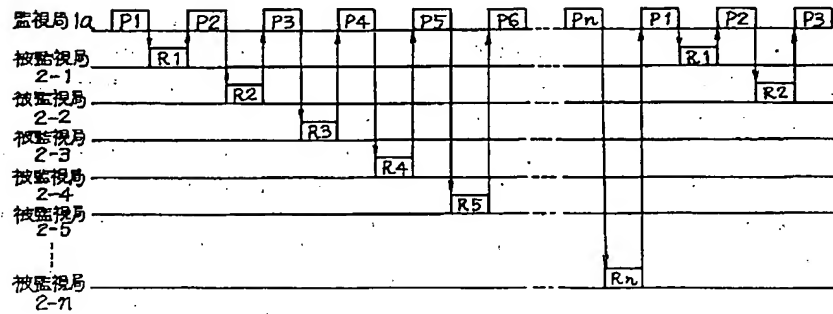
【図2】



【図3】



【図4】



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